

The paragraph beginning on page 2, line 27 is amended as follows:

Figure 3 is a block diagram of [a] circuitry of the pointing device of Figure 2;

The paragraph beginning on page 2, line 28 is amended as follows:

Figure 4 illustrates one embodiment of a voice processing system;

The paragraph beginning on page 2, line 29 is amended as follows:

Figure 5 illustrates another embodiment of a voice processing system; and

The paragraph beginning on page 2, line 30 is amended as follows:

Figure 6 illustrates another embodiment of a voice processing system.

The subtitle on page 3, line 2 is amended as follows:

Detailed Description [of the Invention]

The paragraph beginning on page 3, line 3 is amended as follows:

In the following detailed description of [the preferred] embodiments of the invention, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of illustration, but not of limitation, specific [preferred] embodiments of the invention [in which the inventions may be practiced]. These embodiments are described in sufficient detail to enable those skilled in the art to practice them [the invention], and it is to be understood that other embodiments may be utilized and that logical, mechanical and electrical changes may be made without departing from the spirit and scope of the present disclosure [invention]. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of embodiments of the present invention is defined only by the appended claims.

The paragraph beginning on page 3, line 12 is amended as follows:

Referring to Figure 1, a personal digital assistant (PDA) having a touch screen is described. The PDA 100 is designed to be portable and allow a user to store and recall

information. The computing device or PDA 100 includes a touch screen 102, keypad inputs 104, and optional microphone 106. The touch screen 102 can be controlled using a pointing device, or stylus 110. In one embodiment, the stylus 110 includes a microphone 120 receiving acoustical voice commands which are used to input data and/or control the PDA 100. It will be appreciated that the PDA 100 [personal digital assistant] is typically used in a manner which positions the PDA 100 approximately 12 to 18 inches away from a user's mouth. As such, optional microphone 106 is susceptible to background noise. To reduce the effects of background noise, a microphone is provided in the stylus 110 as described in greater detail below. As illustrated in Figure 1, the stylus 110 can be tethered to the PDA 100 via a wire 109 such that the wire 109 is used for wired communication between the stylus 110 and the PDA 100. This wire is optional, such that in another embodiment the stylus communicates via wireless transmissions. The voice signals received by the stylus 110 are typically translated and displayed on the touch screen 102. The translated data is stored in the PDA 100 such that the user can retrieve the information and view the stored data. The term "personal digital assistant" (PDA) is used herein to define any mobile computing device [processor] intended to store and communicate information for use by a user. This information is typically personal in nature, such as addresses, notes, schedules and the like. The PDA 100 can include lap top computers with a touch screen. The PDA 100 can also include communication circuitry for bi-directional communication with external devices, such as fax machines[,] and networked computers. Thus, PDA's are not limited to data storage and display devices.

The paragraph beginning on page 4, line 5 is amended as follows:

One embodiment of a pointing stylus is illustrated in Figure 2. Stylus 110 includes a first end 112 having a point, and an opposite, second end 114 which includes a microphone 120. The stylus 110 is not limited to having a pointed end, and the end can be, but is not limited to, round, flat or bulbous. The stylus 110 includes a housing 122 which houses an electronic transmitter circuit. An activation switch 124 is provided to allow a user to selectively activate the microphone and transmitter circuits. The stylus 110 is intended to be hand-held and used in a manner similar to a pen. The stylus 110, however, is used to selectively contact touch screen 102

of the PDA [personal digital assistant] to provide input. It will be appreciated that the stylus 110 allows a user to position the microphone 120 close to his or her [their] mouth to increase the quality of voice signals, while reducing the effect of background noise.

The paragraph beginning on page 4, line 16 is amended as follows:

One embodiment of [above] circuitry provided in stylus 110 is illustrated in the block diagram of Figure 3. The circuitry includes microphone 120, a power source 130, switch 124, and a transmitter circuit 132. The transmitter circuit 132 can be configured to either transmit information to the PDA [personal digital assistant] through a wire, or to transmit voice data via a wireless communications signal. If a [the] wired embodiment is desired, power source 130 can be located in the PDA to reduce circuitry located in the stylus 110. In a [the] wireless embodiment, however, the power source 130 is preferably a battery stored within the housing of the stylus 110. Switch 124 is used to activate the microphone and transmitter circuits 120 and 132, respectively, to allow voice signals to be transmitted to a [the] receiving personal computer (Refer to Figures 4 and 5) [processor]. As such, the switch 124 is typically located along the housing of the stylus 110 such that it is easily activated by a finger of the user. The stylus 110 can be configured to transmit electronic voice signals only while the switch 124 is activated. Alternatively, the stylus 110 can transmit [a] voice signals in response to a single activation of the switch 124. In this embodiment, the transmitter 132 of the stylus 110 ends the transmission when input voice signals are not detected for a predefined time period. In yet another embodiment, the switch 124 is used to both activate the transmitter 132 to start voice signal transmissions, and to deactivate the transmitter 132 to end transmissions of voice signals.

The paragraph beginning on page 5, line 3 is amended as follows:

Referring to Figures 4-6 [Figure 4], different operational embodiments are described of a voice processing [controlled] system using the above described stylus 110. In a [the] first embodiment, shown in Figure 4, the stylus 110 communicates electronic voice signals with a PC [personal computer] 200 and directly with PDA 100 via a touch screen. The PC 200 [personal computer (PC)] is a home or a business computer intended for stationary [stationery] use. The

PC 200 [personal computer] includes a wireless receiver for receiving wireless transmissions from the stylus 110. Voice signals received by the PC 200 [personal computer] are translated into computer recognizable or readable data. While the voice signals received by the PC 200 [personal computer] can be used by the PC 200 [personal computer] to perform more processing or other operations, it is intended, in an embodiment of the present system, that the PC 200 [personal computer] transmits translated voice information to the PDA [personal digital assistant] 100 via wireless communication. As such, a user operating the PDA [personal digital assistant] 100 activates touch screen 102 using stylus 110 and speaks into the microphone 120. The voice signals are transmitted from the stylus 110 to PC [personal computer] 200 where the voice signals are translated into data. The data is then transmitted from the PC 200 [personal computer] to the PDA 100 [personal digital assistant]. It will be appreciated that the physical distance between the user and the PC 200 [personal computer] is limited by the transmission power of the stylus transmitter 132, the PDA 100 and the PC 200 [personal computer]. This embodiment allows mobility of the user while maintaining the processing power of the PC 200 [personal computer] for voice recognition.

The paragraph beginning on page 5, line 22 is amended as follows:

In another [a second] embodiment shown in Figure 5, stylus 110 transmits voice data to PDA [personal digital assistant] 100. The PDA [personal digital assistant] transmits the received voice data to PC [personal computer] 200. The PC 200 [personal computer] then translates the received voice signals into data, and it transmits the translated data back to the PDA 100 [personal digital assistant]. This embodiment allows for a more powerful transmitter to be used between the PC 200 [personal computer] and the PDA 100 [personal digital assistant], than may be available with transmitter 132 (Refer to Figure 3). In either of the first two embodiments [or second embodiment], when the PDA 100 [personal digital assistant] is located geographically away from the PC 200 [personal computer] such that communication between them is not possible, the PDA 100 [personal digital assistant] receives voice data from the stylus 110 and records the voice data for future translation. When the PDA 100 [personal digital assistant] returns to a location where communication with the PC 200 [personal computer] is possible, the

recorded voice data is transmitted to the PC 200 [personal computer] for translation, and the translated data is transmitted back to the PDA 100 [personal digital assistant]. This option allows a user to use voice commands regardless of location relative to the PC 200 [personal computer]. If the user retrieves the voice signals prior to translation, the PDA 100 [personal digital assistant] will play the stored signals instead of displaying translated data on the screen.

On page 6, line 8, begin a new paragraph as follows:

Figure 6 illustrates an embodiment where the stylus 110 communicates with the PDA 100, and the PDA 100 performs the speech recognition operations. This embodiment allows the stylus 110 to communicate, in either a wireless or wired manner, with the PDA 100.

The paragraph beginning on page 6, line 12 is amended as follows:

A mobile PDA [personal digital assistant] has been described which allows a user to enter information using both a touch screen and voice commands. A stylus has been described which includes a microphone positioned at one end, and a transmitter for transmitting received voice signals to either a PC [processor] or the PDA [personal digital assistant]. The wireless stylus also includes a power supply and an activation control switch. The PC [processor] can be used to translate the voice signals into computer recognizable data which is transmitted to the PDA [personal digital assistant] for storage and display. If the user and the PDA [personal digital assistant] are located remotely from the receiving PC [processor], voice signals are stored in the PDA [personal digital system] until a later time when the PC [processor] can translate the received voice signals. This application is intended to cover any adaptations or variations of embodiments of the present invention. For example, the PDA [personal digital assistant] may contain [be adapted with] a processor and software sufficient to translate received voice signals such that the PC 200 [personal computer] is not necessary. As such, the stylus transmits directly to the PDA, and the PDA translates received voice signals.